Abstract of the Disclosure

Methods are described for conjugating radioiodinated non-metabolizable peptides to proteins and antibodies with improved yields and qualities of conjugates. Radioiodinated residualizing antibody conjugates comprising any aminopolycarboxylate-appended peptide, or any carbohydrate-appended peptide, are also provided. Additionally, methods are described for conjugating radioiodinated aminopolycarboxylates to proteins and antibodies, as well as for conjugating radioiodinated non-metabolizable carbohydrates to proteins and antibodies by a variety of chemical approaches. The instant radioiodinated residualizing antibody conjugates are particularly stable *in vivo* and are suitable for radioimmunodetection and radioimmunotherapy.